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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SHEN, QUN

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,440	Applicant(s) CHO ET AL.	
	Examiner QUN SHEN	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/9/10.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/9/10 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This communication is a Second Action Final on the merits. Claim 2 has been canceled. Claims 2, 6-7, 13, 17-18, and 20 are amended. Claims 1, 3-22, after amendment, are currently pending and have been considered below.

Priority

Applicant's foreign priority claim for the benefits of KOREA 10-2003-0088895 filed on December 09, 2003 and KOREA 10-2004-0050346 filed on June 30, 2004 on the basis of 371 PCT /KR04/03212 filed on December 08, 2004, is acknowledged.

Specification

Correction is accepted and objection to specification is withdrawn.

Drawings

Correction is accepted and objection to drawings is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows: **(See MPEP Ch. 2141)**

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

1. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0250069 A1, Kosamo, (hereinafter Kosamo), in view of US 2003/0078061 A1, Kim, (hereinafter Kim), and further in view of IEEE Std 802.16-2001 (hereinafter IEEE) and AAPA (Applicant Admitted Prior Art).

As to claim 1, Kosamo discloses a method for requesting a service-specific traffic encryption key from a subscriber station to a base station in a wireless portable Internet system (Fig 1: S10, para [0034], HSS, GGSN/GMSC, and a base station is a part of network, although HSS (home subscriber server) is drawn separately from base station, it can be connected to a base station or GGSN/GMSC but accessed through a base station by a subscriber station (UE)). The method comprising:

(a) determining a service type for the requested traffic encryption key to be used for security on a traffic connection to the base station prior to establishing the traffic connection (para [0009],);

(b) generating a Key Request message for requesting a traffic encryption key corresponding to the determined service type (paras [0014], [0016-0017]).

In Kosamo, communication between a base station and a subscriber station may be implicit, and Kosamo does not explicitly disclose (c) sending the generated Key Request

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message to the base station using a media access control (MAC) message (which is implied in the call establishment process for a secured communication as taught in the specification), wherein the service type is recorded in a parameter included in the Key Request message. Nevertheless, IEEE, defines Key Request message in the over the air (OTA) protocol for SS (service subscriber), i.e. to send the message to the BS (i.e. base station) for periodically refreshing of security keying material (IEEE: Section 7.2.2). Such message is typically sent using a MAC message (see IEEE: section 6, Table 25, code 7) with the service type as a parameter or attribute (see IEEE: section 7.1.2-7.1.3, 7.2.2, 6.1.1.1-6.1.1.2). AAPA also teaches using IEEE for requesting a service-specific traffic encryption key from a subscriber station to a base station in a wireless portable Internet system (AAPA: specification, para [0028]). Consider Kosamo, Kim, IEEE and AAPA's teachings as a whole, it would have been obvious to one of skill in the art at the time of invention to modify Kosamo 's method by incorporating IEEE's specification on sending Key Request message to the base station for a subscriber station to request subscribed services.

As to claim 3, Kosamo as modified discloses the method as claimed in claim 1, wherein the service type comprises a unicast service (IEEE: section 6.2.6.4.1), a multicast service, and a broadcast service (IEEE: section 6.2.6.4.2).

As to claim 4, Kosamo as modified discloses the method as claimed in claim 3, wherein when the service type is a multicast service, the parameter of the Key Request

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message includes an ID containing an identifier of a multicast service group for a subscriber (IEEE: section 6.2.6.4.2, Table 59).

As to claim 5, Kosamo as modified discloses the method as claimed in claim 3, wherein the step (c) includes sending the Key Request message using a PKM-REQ (Privacy Key Management-Request) that is one of MAC messages of the IEEE 802.16 standard protocol (IEEE: 6.2.2.3.9).

As to claim 6, Kosamo as modified discloses a method for generating and distributing a service-specific traffic encryption key from a base station to a subscriber station in a wireless portable Internet system (Kosamo: Fig 1:S11, para [0035], Kim: para [0019], AAPA: specification, para [0028]), the method comprising:

- (a) receiving a Key Request message from the subscriber station requesting the service-specific traffic encryption key (see analysis of claim 1);
- (b) analyzing the Key Request message to determine a service type (Kosamo: para [0035]);
- (c) generating a traffic encryption key according to the determined service type (Kosamo: para [0035]); and (d) generating a Key Reply message including the generated traffic encryption key (Kosamo: Fig 2: S24, paras [0043-0045]) and sending the generated Key Reply message to the subscriber station using a MAC message (IEEE: section 6.2.2.3.9.6), wherein the service type is recorded in a parameter included in the Key Request message (see analysis of claim 1).

As to claim 7, claim 7, Kosamo as modified discloses the method as claimed in claim 6, wherein the base station analyzes the parameter to determine the service type (IEEE Sec 6.1.1.2.2, 6.2.1.3.2).

As to claim 8, Kosamo as modified discloses the method as claimed in claim 6, wherein the step (c) includes: in the case that generation of the traffic encryption key for the subscriber station is a failure due to the determined service type, the base station generating a Key Reject message including an error code indicating a reason of the failure and sending the generated Key Reject message to the subscriber station using a MAC message (Kosamo: para [0035], IEEE: 6.2.2.3.9.7).

As to claim 9, Kosamo as modified discloses the method as claimed in claim 8 but does not explicitly disclose the base station enters "unsupported service type" on the error code and sends the error code to the subscriber station in the case that the traffic encryption key for a service type corresponding to a traffic encryption key request of the subscriber station cannot be generated and distributed. However, IEEE defines Key Request message and Key Reply/Reject message between base station and mobile station and error code with respect to reason of Key Reject and also assign numerous error codes for different reasons (see IEEE: section 11.2.10, Table 132). Therefore, it would have been obvious to one of skill in the art at the time of invention to utilize messages and protocol defined in IEEE to communicate, identify and indicate traffic

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encryption key request of the subscriber station cannot be generated and distributed in the situation when the requested service is unsupported.

Claim 10 is rejected the same ground as claim 3.

As to claim 11, Kosamo as modified discloses the method as claimed in claim 10 but does not explicitly disclose the base station enters "unauthorized multicast service group ID" on the error code and sends the error code to the subscriber station in the case that the service type for the traffic encryption key requested by the subscriber station is a multicast service and defined as unsupported multicast service for the specific multicast service group ID, because the SS is not authorized for the specific multicast service group by the base station. However, IEEE defines Key Request message and Key Reject message between base station and mobile station and error code with respect to reason of Key Reject. Therefore, it would have been obvious to one of skill in the art at the time of invention to utilize messages and protocol defined in IEEE to communicate, identify and indicate situation when the requested service is unsupported.

As to claim 12, Kosamo as modified discloses the method as claimed in claim 8, wherein the Key Reply message and the Key Reject message are sent using a PKM-RSP (Privacy Key Management-Response) message that is one of MAC messages of the IEEE 802.16 standard protocol (IEEE: Section 6.2.2.3.9).

As to claim 13, claim 13 recites protocol configuration method that necessitates the method claims 1 and 6. Rejections on claims 1 and 6 are therefore incorporated herein (see analysis and rejections above).

As to claim 14, claim 14 is rejected on the same ground as claim 5.

As to claim 15, claim 15 is rejected on the same ground as claim 8 (see analysis and rejection of claim 8).

As to claim 16, Kosamo as modified discloses the protocol configuration method as claimed in claim 15, wherein the step (b) comprises: sending the Key Reply message and the Key Reject message using a PKM-RSP message that is one of MAC messages of the IEEE 802.16 standard protocol (IEEE: section 6.2.2.3.9).

As to claim 17, claim 17 recites an apparatus claim for the apparatus wirelessly connected to a base station in a wireless portable Internet system so as to request a service-specific traffic encryption key from the base station, comprising a Key Request message generator, a Key Request message sender, a Key Reply/Reject message receiver, a message analyzer, and a key request controller. The apparatus encompasses and necessitates method claims 1, 6 and 13. Rejections on claims 1, 6

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and 13 are therefore incorporated herein (see analysis and rejection on claims 6 and 13).

As to claim 18, claim 18 is rejected on the same ground as claim 4. The apparatus as claimed in claim 17, wherein the Key Request message further comprises a multicast service group ID of the subscriber station when the service type is a multicast service (IEEE: section 6.2.12).

As to claim 19, Kosamo as modified discloses the apparatus as claimed in claim 17, further comprising: a memory for storing information including the traffic encryption key or the error code resulted from an analysis of the message analyzer under the control of the key request controller (Kim: para [0039]).

As to claim 20, claim 20 recites an apparatus claim for the apparatus provided to a base station for generating and distributing a service-specific traffic encryption key in a wireless portable Internet system, comprising a Key Request message receiver, a message analyzer, a subscriber discriminator, a traffic encryption key generator, a Key Reply message sender, and a key generation and distribution controller. The apparatus encompasses and necessitates method claims 1, 6 and 13. Rejections on claims 1, 6 and 13 are therefore incorporated herein (see analysis and rejection on claims 1, 6 and 13).

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As to claim 21, Kosamo as modified discloses the apparatus as claimed in claim 20, further comprising: a Key Reject message sender for sending a Key Reject message including an error code to the subscriber station using a MAC message under the control of the key generation and distribution controller in the case that the traffic encryption key generator generates an error for the request of the subscriber station (see IEEE: section 6.2.2.3.9.7).

As to claim 22, Kosamo as modified discloses the apparatus as claimed in claim 20, further comprising: a memory for storing information including an analysis result of the message analyzer and a discrimination result of the subscriber discriminator under the control of the key generation and distribution controller (Kim: para [0039]).

Response to Argument

Applicant's arguments filed on February 9, 2010 have been fully considered but they are not persuasive.

Applicant essentially argues that in Kosamo, the network informs a user terminal of security parameters available for the services provided for the user terminal, and then the user terminal selects a security parameter per service. Therefore, it is different from applicant's claimed invention, where a subscriber station requests encryption key which is associated with the service(s) the subscriber requests (see page 9 of remark).

However, Kosamo does teach determining a service type prior to establishing the traffic connection, (see pars 0009, 0014, requesting a call to be established for said user

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terminal, such call establishment is a secured communication as described in Kosamo through out the specification). As in most of mobile originated call situations, the traffic type would have be determined, for example, making a voice call or a data call, before the connection is established (the connection may go different route depending upon the traffic type). The encryption key would also be generated and sent to the mobile station (subscriber station), and such encryption key is corresponding to the service being requested (Kosamo: pars 0034, read as said network informs said user terminal UE of security parameters available for the services provided for said user terminal). As to the mobile station is choosing the security parameter provided by the network, as taught by Kosamo, such selection is for different level of security (low or high, for example) with the same service requested and to be provided (Kosamo: par 0036). In fact a default parameter (encryption key) can be used so no such selection is available (Kosamo: par 0038). Therefore, Kosamo's teachings are in line of applicant's security protocol. Consider the combined teachings as a whole, the prior arts still read on the claimed invention. See office action for the details. Also see the pertinent art listed but not used for rejection (Sarkkinen, US 2005/0015583, pars 0134, 0156, 0220-0226, 0252-0253, 0292, 0298) that provides similar teachings as claimed invention.

Conclusion

Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUN SHEN whose telephone number is (571)270-7927. The examiner can normally be reached on Monday through Thursday, 9:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on 571-272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/QUN SHEN/
Examiner, Art Unit 2617

/Lewis G. West/
Supervisory Patent Examiner, Art
Unit 2617